USAID

FEWS Project

Observations on the Status of African Early Warning Systems:

1999 FEWS Field Survey Results

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Executive Summary

This report presents a summary of the Famine Early Warning System (FEWS) field representatives' responses to a brief February 1999 survey on the status of national and regional famine early warning systems in Africa.[1] FEWS/Washington asked FEWS field staff to report on: 1) the evolution of the early warning system structure and capacity; 2) the implications of the evolution on the ability of host countries and/or FEWS to perform their respective roles and build capacity within these systems; and 3) steps taken to address weaknesses or other capacity-related issues. The survey's broader objective was to launch a discussion concerning the future of national and regional early warning systems. Although there is a growing recognition of the need to better integrate early warning and response activities, this paper focuses on the early warning component because FEWS field staff experience is largely in this area.

Most early warning and food security monitoring systems in Africa were established to reduce famine or extreme food insecurity resulting from droughts, flooding, highly fragmented markets, poor infrastructure, and a high incidence of poverty. In most cases, all these conditions have persisted, largely unabated, and in some cases have intensified. In only a few instances have some of these conditions (mostly infrastructure and markets) actually improved. In addition, incidence of civil conflict has been intensifying and spreading throughout much of the continent. In these circumstances, effective early warning is even more critical.

Unfortunately, while the need for early warning has increased, the timeliness and accuracy of the data and information systems upon which early warning is based have been rapidly declining. In some cases, analytical capacity is shrinking as a result of budget cuts and reduced staffing levels. This report highlights the declining capacity.

With few exceptions, African early warning systems and especially key data collection and statistical services are deteriorating; future expectations are poor. Government restructuring and termination of various donor-funded projects have officially or unintentionally curtailed regular data collection of meteorological, hydrological, agricultural production and/or food prices, and health variables that early warning systems depend on. Food balance sheet analyses, cereals accounting, and vulnerability analyses also depend to some extent on these data and, as a result, have suffered as well. As resources and salaries have dwindled, civil servants, become technically and operationally incapacitated, are increasingly demoralized. Much of the capacity developed over the past 15 years has proven to be unsustainable in present circumstances. With few exceptions, governments have shown little willingness or ability to support these activities.

Following the Food and Agricultural Organization (FAO) methods of food balance sheet analysis and cereal accounting, in general, early warning analysis has over-emphasized national availability of cereals. There has been limited progress on developing deeper food security analyses that focus on access and availability. In many places, the requisite technical knowledge within specific disciplines exists in the field. Rarely, however, is this knowledge of food access articulated into multidisciplinary food security analyses that point to specific vulnerable

[1] This report is based on 1999 information, for the most part, and does not take into account institutional changes or other developments that affected African national and regional food security early warning agencies after November 1999, unless otherwise noted.

populations and support recommendations for food security disaster mitigation, contingency, and response planning. Technical skills are needed that are better tailored to early warning; improved in-depth food security analysis and synthesis of early warning information are also missing. Early warning methods need to adjust to evolving country-specific environments that, in many cases, lack reliable national food system time series data. New early warning indicators, analytical tools, and strategies for more targeted or restricted geographic coverage need to be devised.

Currently, there is inadequate coordination of international early warning data and information collection, and insufficient use of the results in contingency and response planning. The new European Union (EU) Réseau Européan de Securité Alimentaire (European Food Security Network or RESAL) program recently placed FEWS-like reporting units in six countries that FEWS covers. As a result, there is an overlap between RESAL and FEWS in data collection, reporting, and/or capacity-building activities in Chad, Ethiopia, Malawi, Mauritania, Mozambique, and Niger. In Ethiopia, the National Early Warning System (NEWS) has made advances in coordinating field assessments. Donors tried, albeit unsuccessfully, to harmonize field methods in Chad. Small cooperative efforts were also attempted in Burkina Faso, Malawi, Mauritania, Mozambique, Niger, Zambia, and Zimbabwe. Clearly, more effective collaboration is necessary.

Acronyms

ACDI/VOCA	Agricultural Cooperative Development International/Volunteers in Overseas Technical Assistance
AGRHYMET	Agronomie-Hydrologie-Météorologie, CILSS program for agriculture, hydrology and meteorology, Sahel
AGRITEX	Department of Agricultural Technical and Extension Services
ALRMP	Arid Lands Resource Management Program, Kenya
AMIC	Agricultural Marketing Information Center, Zambia
ARC	Agro-Hydro-Meteorological (AGRHYMET) Regional Center, Sahel
ARP	Agro-Hydro-Meteorological (AGRHYMET) Regional Program, Sahel
BDM	Botswana Department of Meteorology
CBS	Central Bureau of Statistics, Kenya
CILSS	Comité permanent inter-États de lutte contre la sécheresse dans le Sahel (Permanent Interstate Committee for Drought Control in the Sahel)
COC	Comité d'Orientation et de Coordination (Orientation and Coordination Committee), Mali
CSA	Commissariat à la sécurité alimentaire (Food Security Commission), Mauritania
CSO	Central Statistics Office, Zimbabwe
DEP	Directorate of Planning Studies (Direction des Etudes et Planification), Burkina Faso
DIAPER	Projet diagnostique permanent, a CILSS program supporting data collection
DMC	Drought Monitoring Centre, Kenya and Zimbabwe
DPIRP	Drought Preparedness Invention and Recovery Program, Kenya
DPPC	Disaster Prevention and Preparedness Commission, Ethiopia
DPPB	Regional Disaster Prevention and Preparedness Commission, Ethiopia
DRSRS	Department of Resource Surveys and Remote Sensing, Kenya
DSA	Division de le Statistique Agricole (Agriculture Statistics Division)
EAC	East African Cooperation a new body whose members—Kenya, Tanzania and Uganda—were previously members of the defunct Community.
EU	European Union
EW	Early Warning
EW&FIS	Early Warning and Food Information System, Eritrea
EWC	Early Warning Community
EWFIS	Early Warning and Food Information System, Eastern Africa and the Horn
EWS	Early Warning System
EWTC	Early Warning Technical Committee, Botswana
FAO	Food and Agricultural Organization of the United Nations
FASWOG	Food and Agricultural Sector Working Group, Tanzania
FEWS	Famine Early Warning System, a USAID project
FHANIS	Food, Health and Nutrition Information System, Zambia
FSAU	Food Security Assessment Unit, Somalia
FSTAU	Food Security Technical and Administrative Unit, SADC
GIEWS	Global Information and Early Warning System, of FAO (or, in French, Système Mondial d'Information et d'Alerte Rapide, SMIAR)

GTP	Groupe du Travail Pluridisciplinarie (Multidisciplinary Working Group), Sahel
GTPA	Groupe du Travail Pluridisciplinarie (Multidisciplinary Working Group), Mali
IGAD	Inter-Government Authority on Development, previously IGADD
IGADD	Inter-Government Authority on Drought and Development, now IGAD
IMF	International Monetary Fund
INAM	National Institute of Meteorology, Mozambique
KMD	Kenyan Meteorological Department, Kenya
LAC	Local Area Coverage
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries, Uganda
MIS	Market Information System
MSU	Michigan State University
MOA	Ministry of Agriculture
MOAI	Ministry of Agriculture and Irrigation, Malawi
MOALD	Ministry of Agriculture and Livestock Development, Kenya
MOH	Ministry of Health
NAC	National AGRHYMET Center
NCPB	National Cereals and Produce Board, Kenya
NCPRMC	National Crisis Prevention and Response Management Committee
NDVI	Normalized Difference Vegetative Index
NEW&FIS	National Early Warning and Food Information System, Namibia
NEWS	National Early Warning Systems
NEWU	National Early Warning Unit
NEWC	National Early Warning Committee
NEWFIU	National Early Warning and Food Information Unit, Uganda
NFSC	National Food Security Committee, Kenya
NFRC	National Famine Relief Coordinator, Kenya
NFIS	National Food Information System, Eritrea
NGO	Non-Governmental Organization
NMS	Namibia Meteorological Service
NMSA	National Meteorological Services Agency, Ethiopia
OMA	Observatoire des Marchés Agricoles (Agricultural Market Observation System), Mali
PAM	Progama de Alimentacão Mundial/ Programme Alimentaire Mondial (World Food Programme)
PASAR	Project d'appui à la sécurité alimentaire au Rwanda
PIR	Projet des informations rurales (Rural Information Project), Mauritania
PRMC	Programme de Restructuration du Marché Céréalier, (Cereal Market Restructuring Program), Mali
RESAL	Réseau Européan de Securité Alimentaire (European Food Security Network)
REWS	Regional Early Warning System
REWU	Regional Early Warning Unit
RIIS	Regional Integrated Information System
RRSU	Regional Remote Sensing Unit, SADC

SAP	Système d'Alerte Précoce (Early Warning System), Sahel
SADC	Southern African Development Community
SSA	Service des Statistiques Agricoles (Agricultural Statistics Service), Burkina Faso
SCF/UK	Save the Children Fund/United Kingdom
SIM	Système d'Information sur les Marchés (Market Information System)
SIMA	Sistema de Informacão do Mercado Agricola (Agriculture Market Information System), Mozambique
SISAAR	Système d'Information sur la Sécurité Alimentaire et l'Alerte Rapide
SP/CPC	Secrétariat Permanent de la Coordination de la Politique Céréalière (Permanent Secretariat for the Coordination of Cereal Policy), Burkina Faso
UN	United Nations
UNDP	United Nations Development Program
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WB	World Bank
WFP	World Food Program

I. Introduction

This report summarizes FEWS field representatives' responses to a brief February 1999 survey on the status of national and regional famine early warning systems in Africa. FEWS/Washington asked FEWS field staff to report on: 1) the evolution of the early warning system structure and capacity; 2) the implications of the evolution on the ability of host countries and/or FEWS to perform their respective roles and build capacity within these systems; and 3) steps taken to address weaknesses or other capacity-related issues. The survey's broader objective was to launch a discussion concerning the future of national and regional early warning systems. Although there is a growing recognition of the need to better integrate early warning and response activities, this paper focuses on the early warning component, the FEWS field staff's main area of expertise.

The survey results are presented by region and by country. Countries included are: Burkina Faso, Chad, Mali, Mauritania, and Niger in the Sahel; Eritrea, Ethiopia, Kenya, Rwanda, Somalia, Tanzania, and Uganda in Eastern Africa and the Horn; and Malawi, Mozambique, Zambia, and Zimbabwe in Southern Africa. FEWS has at least one full-time technical staff member working on each of these countries. In Botswana, Lesotho, and Namibia, FEWS does not have full-time staff but does provide partial coverage, mostly in the form of technical assistance. These countries and the regional early warning system of the Southern African Development Committee (SADC) are also included in the review. While FEWS provides coverage for Southern Sudan, it does not have a unified early warning system and therefore was excluded from the review.

II. National Early Warning Systems

This report focuses on food security monitoring and early warning systems or, for ease of reference, early warning systems. The goal of these systems is to provide sufficient warning of an impending food crisis to evoke an adequate and timely response to mitigate potential human suffering. An effective early warning system depends on reliable and relevant information, sound analyses, and reporting that is tailored specifically to the needs of contingency and crisis response planners. Coordination is a critical element in effective and efficient operation of early warning systems because many individuals and diverse institutions (e.g., ministries, development projects, etc.) operating at different administrative levels (i.e., national, provincial, or district) contribute to the process. These systems typically make use of secondary data on weather, hydrology, crop and livestock production, food prices, health and nutritional status, and demographics. Some NEWS also collect trade and exchange rate information. These inputs must be integrated and transformed into consolidated useful information and recommendations for response planners. Although an early warning system may be extremely effective at providing information and analysis, its ultimate success in preventing human suffering will depend on the mandate, capacity, and commitment of the crisis prevention and response management entities that review its findings and recommendations.

While the institutional composition of each National Early Warning System differs greatly across the continent, it typically includes the following:

1. Data collection units in agriculture and other ministries (health, water and hydrology, etc.) and the national meteorological service;

2. Ministry-specific technical units that assemble and analyze data and create discipline-specific reports (e.g., food-balance sheets and crop and weather forecasts);

3. An interagency technical group that interprets the various discipline- and service-specific analyses from an early warning perspective, identifies areas of vulnerability, and makes recommendations; and,

4. An interagency managerial committee that evaluates the recommendations and formulates decisions.

Some National Early Warning Systems contain all, or nearly all, data collection, analysis, reporting, and decision-making functions in a single ministry, but the involvement of various units and services dispersed among an array of ministries is the norm. For other systems, the latter two elements (3 and 4) are combined and, in a few cases, decisions are largely independent of the input from other NEWS participants. Most cover a entire country, but they may include more than one data collection and reporting network for different parts of the country. In the Sahel, the NEWS are more active in the most arid area, the Sahelian zone, which has only between 200 and 800 mm of rain annually. Regional early warning systems (REWS) cover several countries contained in a region and focus on regional famine and food security issues. Examples are the SADC regional early warning system in Southern Africa and the Agro-Hydro-

Meteorological (AGRHYMET) Regional Program (ARP) of the Inter-State Committee for Drought Control in the Sahel (CILSS).

Most early warning and food security monitoring systems in Africa were established to prevent famine or extreme food insecurity resulting from a combination of drought, flooding, highly fragmented markets, poor infrastructure, and high incidences of poverty. In general, the African monitoring systems have a strong rural orientation. Of the countries that FEWS covers, Zambia is the only exception.

The creation of African National Early Warning Systems began in the late 1970s and accelerated through the 1980s. Several different initiatives aimed to establish a series of similar national early-warning systems in a specific region, e.g., CILSS/AGRHYMET in the Sahel and the United Nations FAO model in Southern Africa. Most governments, however, adopted modified versions of these region-specific models. As a result, each African NEWS may differ in terms of the institutions that constitute the system and how representatives from these institutions collaborate in the process of providing timely information to decision makers and response planners. How effectively each NEWS operates also varies widely across countries. Nevertheless, all these systems include a set of institutions that collect and interpret data related to weather and food availability, access, and needs with a view to identifying at-risk populations. This information then feeds into the response system that comprises the food crisis prevention and response arms of governments, donors, and non-governmental organizations (NGOs).

All the countries reviewed, except Rwanda, have a staff unit and related oversight committee at the NEWS apex . However, the placement of the national early warning unit (NEWU) in the government and the nature of its responsibilities varies across countries. Some exist as technical units within the Ministry of Agriculture (MOA) or other line agencies. Others are attached to a prime ministerial or presidential cabinet. Some employ permanent staff, while others rely on the participation of representatives from key ministries and agencies who meet regularly during a specific time of year, usually the rainy season. The national early warning units seldom collect primary data, but instead assemble data gathered by other institutions within the broader NEWS. Some do not venture much beyond analyzing localized problems of food availability and access, while others also formulate action or even recommend policies for decision makers. Some emphasize technical issues such as methods of data collection and field assessments or data maintenance and analysis, while others either formulate the government positions on pending crises or coordinate early warning and response activities; generally, they do not do both.

The term NEWU is generic and has been applied to each of these configurations. It is also a proper name used in several Southern African countries. To avoid confusion, this paper attempts to avoid using NEWU only as a generic acronym. NEWU is used only when referring to Botswana, Lesotho, Zambia, and Zimbabwe, where it corresponds to the actual names of entities. For all other configurations, the term national early warning committee (NEWC) is used. This is a generic and variable concept. It is actually a more accurate term since early warning analysis is usually the product of a committee, with or without an associated staff unit, rather than only a staff unit. While the structures, relationships, and authority vary across countries, every country has some form of a NEWC, where results of various analyses are discussed and debated to form

at initial recommendations. The early warning community is all the components included under the NEWS including the international collaborators active in each country.

A. The Sahel

In most FEWS Sahel countries, each NEWS generally has a similar structure, although there are variations in function and specific configuration. Originally set up to deal with chronic susceptibility to drought-related food-security crises, particularly in the more arid areas of each country, each NEWS is closely linked to several donor-funded regional programs. In the Sahel, early warning grew up in the course of establishing the AGRHYMET Regional Program (ARP), which is headquartered at the AGRHYMET Regional Center (ARC) in Niamey, Niger. In addition, the ARP is comprised of National AGRHYMET Components and Multi-disciplinary Working Groups. The National AGRHYMET Components is an administrative coordination point in the national meteorological service. The Multi-disciplinary Working Groups are interministerial and include representatives of the various services that provide data and reports for early warning use each month only during the growing season. The coverage is generally national. They furnish information that flows in two directions: to the ARC and national government decision-makers. The ARC produces decadal and monthly bulletins during the growing season.

All the FEWS Sahel countries, except Mauritania, have another early warning entity, the Système d'Alerte Précoce (SAP), which covers only the Sahelian zone of each country. Depending on the country, a SAP may engage in primary data collection or it may rely on secondary sources. Most of the FEWS Sahel countries have a NEWC, usually comprised of the GTP in a supporting role plus a SAP secretariat and ministerial committee at the apex. The SAP structure assembles and synthesizes data and formulates recommendations for decision-makers. The contribution and authority of each NEWC member component varies from country to country.

Each NEWC monitors and reports on rainfall, crop growth, surface water, hydrological conditions, crop growth, pasture and livestock conditions, and the incidence of pests throughout the growing season. Beginning 10 or 15 years ago, market information systems were created and have increasingly contributed information on cereals and sometimes on livestock prices and major cash crops. Monthly monitoring and reporting is supplemented by pre-harvest and harvest assessments that generate crop production estimates.

Each November, there is a regional CILSS meeting where production outlooks are reviewed; at a second March meeting, organizations presents final production estimates and reviews plans for interventions to address food insecurity problems within the region. For more than a decade, national production surveys and related data-gathering structures have benefited from EU support through a multi-phased regional project called DIAPER. The resulting production data are fundamental to a number of key analytical tools such as the FAO Food Balance Sheets and National Crop Estimates, FEWS Current Vulnerability Assessments and monthly reports, local and regional early warning bulletins, and World Food Program Vulnerability Assessment Mapping.

Historically, the national and regional Sahel early warning structures have analyzed food availability. The concept of food access is understood, but the distinction between food access and availability is rarely addressed analytically. However, ARC has a mandate from the CILSS governing body to broaden its current focus on bio-physical information bearing on food availability to include vulnerability assessment methodologies that deal with access issues, at both the regional and national levels.

For the time being, the AGRHYMET program will continue to collect meteorological and hydrological data. USAID and the European Union will support marketing information systems (SIMs) in Mali and Niger, respectively. The DIAPER program agreements committed Sahelian governments to gradually assume full financial responsibility for the operation of the agricultural statistics divisions (SDA) and other agricultural data-gathering functions. However, the third and most recent five-year phase of the DIAPER program officially ended in April 1999 with significant shortfalls in governments' financial allocations to data collection. Mali is one exception; the Malian government now fully funds agriculture data collection activities.

While DIAPER is not the only source of donor support, its termination is a major setback to the region's early warning systems. Without DIAPER, financial responsibility for the collection of agricultural data and annual crop-forecasting exercises falls squarely on the national governments. Continuation of these functions will depend largely on the availability of alternative sources of donor funding and each country's commitment to early warning and food security analysis. The European Union's new early warning reporting agency,[2] RESAL, covers Burkina Faso, Cape Verde, Mauritania, and Niger in West Africa. But with no role in or funding for primary data collection, RESAL will not replace DIAPER nor compensate for shrinking government budgets allocated to these activities. While most administrative units engaged in data collection have endured this financial contraction, the quality of their output is eroding. In the short-to-medium term, the performance of individual NEWS will probably vary widely, largely as a function of residual donor support and national government's financial resources and political will.

1. Burkina Faso

The Burkina Faso NEWS is slightly different than that of other countries in the FEWS Sahel region. The SAP food security monitoring and data collection units are based at the provincial level. The Technical Unit of the Coordinating Committee on Food Security Information (CT/CCI) receives the information gathered by the provincial SAP units. The CT/CCI also receives information from the National Meteorological Office, which releases a bulletin every month during the growing season. The CT/CCI has the primary responsibility for analyzing, interpreting, and forecasting potential food insecurity for the entire country. In 1998, the CT/CCI was restructured and became a key component of the Directorate for Planning Studies in Ministry of Agriculture, where the Agricultural Statistics Service is also housed. This service also supplies early warning data.

[2] RESAL (the European Food Security Network) has three responsibilities: 1) provide food security information to EU decision makers in Brussels and in the field, 2) assist the EU in the definition of an appropriate EU food security assistance program, and 3) actively participate in conferences, workshops, and other fora related to food security. It publishes monthly and quarterly newsletters.

FEWS collaborates most closely with the CT/CCI. The CT/CCI furnishes FEWS with information pertaining to areas sown, crop yields, food availability, and other food security relevant information. Most of the time, the information comes in the form of a bulletin released every three months, although it is supposed to be a monthly bulletin. FEWS staff can also contact the CT/CCI directly and receive whatever information they have available, but not yet published. FEWS provides CT/CCI with useful FEWS data managers and software, interpretation of satellite imagery, pre-harvest assessments, vulnerability assessments and other outputs.

The CT/CCI prepares most of the technical overviews on the food security situation in the country. The Permanent Secretary of Cereal Policy formulates policy recommendations and is an intermediary between the CT/CCI and the Minister of Agriculture.

The National AGRHYMET Center has had continual financial problems. While donor funding exists, the mechanisms for releasing these funds are slow and cumbersome. This is essentially why the Groupe du Travail Pluridisciplinarie (Multidisciplinary Working Group or GTP) was only marginally operational until 1999, when it received a renewed mandate to undertake seasonal crop assessments. Even so, the GTP had to postpone its field trips several times until late July because funds were not available.

In Burkina Faso, there is an explicit political commitment to early warning. Financial responsibility for the SIM has already been absorbed by SONAGESS, the government-funded organization that manages the national cereal security stock. Also, the Government of Burkina Faso has stipulated that data collection costs will be incorporated in the national budget. Still, the government must fill the gap created by DIAPER's withdrawal and the loss of World Bank support of the CT/CCI central office and the provincial SAPs through the Food Security and Nutrition Project. Both funding sources were expected to end in 1999. The CT/CCI depends on data from the SAPs for early warning analysis and reporting. FEWS/Burkina Faso notes creeping delays (from one to several weeks) in data reporting. There is a chance that the Dutch government will support some early warning-related activities until 2000 and possibly beyond. The EU just established a RESAL program in Burkina Faso, and it will assist the government to define a food security strategy. Additional EU support is contingent on the definition of the food security strategy.

RESAL recently released a report in September 1999 with recommendation for changes in the NEWS structure. The report recommended that the CT/CCI and SAP be separated into two autonomous units. The SAP would no longer report to the CT/CCI but rather to the highest-ranking officials in the MOA or the Ministry of Territorial Management. The SAP's primary function would be targeting, while the CT/CCI would focus on conducting special issue studies on food security. RESAL also recommends that the equivalent of $100 million be allocated to the SAP, starting in January 2000, when the World Bank's support is expected to terminate.

2. **Chad**

Government budgetary resources are extremely tight in Chad, and the government of Chad has been chronically behind in its contributions to DIAPER activities. Late government payments

caused delays in the European Union's conditional contributions. In 1997, serious payment delays crippled the operations of the agricultural statistics division. The NEWS in Chad is heavily dependent on external funding. The EU supported agricultural production surveys through DIAPER and the SAP secretariat. The French government and World Bank finance data collection activities as part of their broader project activities in the Lake Chad Region. At the Government of Chad's request, the FAO and United Nations Development Fund (UNDP) recently initiated a System for Food Security Information and Early Warning (SISAAR) that is housed in the Ministry of Agriculture. The idea is to have a more comprehensive system than the SAP, which only covers Chad's Sahelian zones. The SAP was phased out in April 1999. SISAAR now receives French financial and technical support.

As in other Sahelian countries, the National AGRHYMET Center is the GTP hub and provides food security monitoring and early warning information to the ARC in Niamey and relevant Chadian government entities. It is active, but constrained in its fieldwork by a lack of funds. FEWS collaborates with this group and is often accompanied on field trips by National AGRHYMET Center staff. Chad also has an Action Committee for Food Security Information and Management of Catastrophes (CASAGC). Its members include donor and NGO representatives and government officials. Its function is to coordinate the dissemination and review of food security information and response planning. SISAAR serves as the CASAGC secretariat.

Besides funding problems, there is also the data quality issue. Chad is a country with several independent projects that partially overlap geographically. Each project uses its own methods to collect data over a limited project area, e.g. the Sahel zone, Lake Chad, or cotton-producing regions. With the declining reliability of the agricultural statistics division's output and reporting, retrieving and piecing together the various data sources has become the NEWS mainstay. But the process has been riddled with methodological inconsistencies. Concerned donors held a June 1995 workshop to harmonize and improve data collection methods, but their recommendations were never successfully implemented.

Civil servant salary payments have been regular during the current presidential term, but salary levels are so low that they often do not cover basic needs. Ministry resources for field visits are very limited. At times, the only means open to ministry staff for making field site visits is to accompany FEWS on its periodic field trips. Ministry staff are underemployed and demoralized. As a result, data are collected only sporadically and are of increasingly dubious quality.

3. **Mali**

The Mali NEWS has been operating since 1986. The SAP is essentially the NEWC, with other early warning entities such as the GTP feeding some field-specific information into it. The Orientation and Coordination Committee is a high-level technical governmental and donor committee that reviews and approves SAP recommendations. In turn, Orientation and Coordination Committee recommendations feed into a high-level decision making body, the Cereal Markets Restructuring Program.

Well-trained nationals now manage the SAP and it has a wealth of information on local coping strategies and the evolution of food crises. The SAP does not rely on national production data, but collects its own information at the arrondissement level on rainfall, flood levels, pasture conditions, pest infestation, prices, migration, transhumance, human and animal health, and other food security relevant information. The SAP operates at both the national and regional level, but covers only the Sahelian zone, where there is moderate to extreme food insecurity. SAP staff also participate in GTP monthly meetings. SAP staff make field trips, analyze data, and publish reports. However, the information needs to be more fully exploited so as to provide more comprehensive food situation assessments. This will require some redesigning of databases. Recently, the staff has been adopting the FEWS price software and image display and analysis software.

The GTP (known as the GTPA in Mali) publishes a timely agro-meteorological bulletin. It prepares advice on optimal planting dates, fertilizer use, and seed variety choice for farmers. This information is then processed into a form suitable for radio broadcasting to rural areas. The statistics division with the Ministry of Agriculture has sufficient technical and financial resources and is expected to independently conduct the annual national agricultural survey.

Mali has a state-of-the-art marketing information system (SIM) that was recently restructured and is now called the OMA. It has long been supported by USAID-financed technical assistance contracted through Michigan State University. The SIM collects price information from 80 markets throughout the country using agents from the national food products marketing agency. The Government of Mali has been increasing its financial contribution to the NEWS, but still the SIM, SAP, and GTP have all been largely dependent on donor funding. External funding for the SAP will continue through the Cereal Market Restructuring Program until December 1999; this program's funding extends until 2004, so there is hope that it will continue to support SAP. The government has expressed a commitment to early warning and Mali has a cadre of well-trained analysts and technicians. The SAP functions well. The challenge for Mali is how to raise the funds to cover the recuring costs of maintaining NEWS independent of donor assistance. For now, they are relying to some extent on food aid monetization. Still, as the recipient of a large volume of donor assistance, the prospects are good for Mali to produce early warning information of suitable quality for the foreseeable future.

4. **Mauritania**

In 1995, FAO and UNDP began a rural information project in the Ministry of Rural Development and the Environment that was to monitor food security. It was quickly replaced by another FAO-sponsored project called the System for Food Security Information and Early Warning (SISAAR, as in Chad). Despite its name, SISAAR does not exercise an early warning mandate, but rather focuses on food security matters in a broader development context.

Although Mauritania is a member of CILSS and AGRHYMET and supported by the DIAPER, it lacks a functioning apex structure, so there is essentially no NEWS, no working SAP, and only a skeletal SIM with limited geographic coverage. The SIM has gone through several different unsuccessful incarnations since the early 1980s. Cereal price reporting lags by one month or more, and the data are not very reliable. Some problems noted during DIAPER III were non-

payment of enumerators, lack of adequate fuel and vehicles for fieldwork, poor supervision of data collection, and politicization of the process. Staff turnover is generally high. Agriculture data collection recently has been suspended altogether. Early warning analysis is highly dependent on qualitative and anecdotal information. The Food Security Commission is charged with receiving, warehousing and distributing food aid and is in the process of restructuring. It is easing out 300 people through early retirement.

Only the NAC and GTP work well, but with very little input from the local meteorological service. The staff is well trained. The GTP produces a quality bulletin each dekad (10 days) during the rainy season and has managed to make it available through the internet. According to FEWS field staff, the GTP is the most dynamic and best functioning unit in the region. The GTP, which only meets during the growing season, most closely resembles a NEWC.

At present, there are several donor-funded initiatives. The AGRHYMET Regional Program collaborates with and supports the NAC/GTP; FAO and UNDP continue to support the SISAAR; USAID supports FEWS; the World Food Program (WFP) has a local VAM office, and the European Union is launching RESAL. These programs' core activities relate to food security and early warning analysis and reporting. Yet, with the DIAPER project ending, none of them are served by regular agricultural monitoring data or statistics form field services, and only FEWS and WFP/VAM conduct field assessments.

The European Union plans to invest $18 million in a food security monitoring system that will include a SAP and a new national SIM, and will also provide funds for small food security related projects. There will be three European technical assistants: one at the SAP, one at the SIM, and a third will work at the fund for small development projects. The EU will furnish computers, other equipment, and training.

5. Niger

Niger has a SAP, GTP, and SIM that, together with several other ministerial directorates, form early warning interministerial working groups that function at the national, regional, and subregional levels. This group acts as the NEWC. Because nearly all of Niger lies in the Sahelian zone, the SAP has national coverage.

All NEWS component activities have always been highly dependent on donor funding. The Government of Niger has consistently had difficulties covering its increasing share of DIAPER expenses. At this point, most donor support to NEWS has ended. There are uncertain prospects for the continuation of the small volume of donor aid that was recently given by the French and European Union. Government salaries are not always paid, and travel funds, fuel, and vehicles are not available for fieldwork. Without the means to do their work, NEWS staff morale continually erodes. Data timeliness is a direct function of the government's ability to pay the civil servants, and FEWS/Niger reports delays of one month for cereal price data and one to two months for livestock data. Data quality is declining as well. The short-to-medium-term prospects are not favorable, particularly in the realm of agricultural production and price data collection. The government has expressed limited political will to rescue the crippled NEWS. The NEWC

staff note that, even when ample funding was available, the results of Niger's agricultural survey were highly suspect.

The European Union will be launching a three-year program to finance the SIM, SAP and the Livestock Information System in Niger, and censuses of agriculture and livestock. It is expected that these funds will begin to flow into the national budget in 2000. However, it is unclear whether sufficient mechanisms are in place to ensure that these funds will be earmarked to specific line items such as data collection or other early warning activities. The Health Information System, which was supported by USAID until recently, will be without donor assistance. The government is currently looking for alternative funding.

B. Eastern Africa and the Horn[3]

In Eastern Africa and the Horn, the Intergovernmental Authority on Development (IGAD)[4] serves as the regional body linking seven countries in East Africa and the Horn. Rwanda and Tanzania are the only countries in the broader region that are included in this review and are not IGAD members. Rwanda currently has observer status with the East African Cooperation. Tanzania is a SADC member and is usually considered part of Southern Africa. FEWS, however, finds that it is logistically easier to manage Tanzania through the regional FEWS office in Nairobi and therefore, includes it in Eastern Africa and the Horn. In addition, Tanzania has some bimodal rainfall areas like other countries in the Greater Horn and unlike SADC countries. This study follows the FEWS convention of grouping Tanzania among the Greater Horn countries.

1. IGAD Activities

Intergovernmental Authority on Drought and Development (IGADD) operated an "Early Warning and Food Information System" (EWFIS) project from 1987 to 1995. The Government of Italy funded the project and the FAO implemented it. The project was designed to support or establish a NEWS in each member state and develop a REWS at the IGAD Secretariat in Djibouti. While some limited progress was made at both the national and regional level, more focus was placed on the regional early warning systems. Experts working on this project were mainly from universities, and their focus was largely on software and database development. The two most notable developments were the software packages ADDAPIX, which does multivariate analysis of raster data (especially NDVI), and ADDATI, which does vector data analysis for early warning. With the general move towards Windows© operating systems, both of these DOS©-based packages became outdated. The databases collected under the first phase, although dated, could provide useful information if they could be easily accessed. IGAD also operated a Market Information System, which attempted to support national market information branches and consolidate data on a regional basis. This activity has also ended.

A proposal for the project's second phase was prepared, but little donor funding was secured. Each NEWS was presented as a separate component, in the hope that individual donors would fund one or more countries. The Italian government was the only donor to provide support; it funded the Eritrean EWFIS and the now-defunct IGAD regional Market Information System.

[3] FEWS countries in this region include Ethiopia, Eritrea, Kenya, Rwanda, Somalia, Sudan, Tanzania, and Uganda.
[4] Previously called the Intergovernmental Authority on Drought and Development (IGADD).

Food security is one of the revitalized IGAD's focus areas (along with conflict prevention and regional integration). IGAD defined 17 "priority projects" to conduct after revitalization, including creation of a Regional Integrated Information System (RIIS) to provide information to decision-makers on food security, environment, and possibly conflict. In theory, the system would incorporate all previous IGAD early warning and food security activities. The 18-month design phase should be completed in 2000, after which IGAD may again play a role in regional early warning.

The IGADD regional early warning system included a regional remote sensing activity that operated out of the Regional Centre for Services in Surveying, Mapping and Remote Sensing in Nairobi. This activity aimed to disseminate satellite data to member states. The activity was recently reactivated under the French Cooperation and transferred to the Kenyan Meteorological Department, which also hosts the Drought Monitoring Centre.

The Drought Monitoring Centre-Nairobi is not an IGAD organization, although a recommendation to formally incorporate it under the IGAD umbrella has been made to the IGAD Council of Ministers and is awaiting action. DMC-Nairobi's sister organization, the Drought Monitoring Centre-Harare, is now under the SADC umbrella. In response to episodic drought in the 1980s, the World Meteorological Organization established the DMC system with UNDP financial support in 1991. DMC objectives are to provide regular and timely weather and climate advisories. DMC-Nairobi produces a monthly bulletin, which includes regional climatic information and rainfall data from 21 countries in east and southern Africa. DMC-Nairobi has been instrumental in initiating the Climate Outlook Forum process in the eastern Africa region, with FEWS support. Through the Office of Foreign Disaster Assistance and the Greater Horn of Africa Initiative, USAID recently approved two proposals to support DMC-Nairobi. This will help DMC-Nairobi become involved in downscaling global climate models for use in the Greater Horn region and allow it to continue the process of regional climate forecasting, through training and support to national meteorological services.

2. Regional Issues

The countries of Eastern Africa and the Horn share important similarities in socioeconomic environments, including exposure to conflict, which distinguishes them from other countries. Somalia currently has no unified government. Rwanda was recently traumatized by extreme ethnic violence and is now in the slow process of recovery, resettlement, and reconstruction. War has broken out between Ethiopia and Eritrea, and hostilities continue in Southern Sudan. Refugees fleeing violence in their own countries have inundated parts of Ethiopia, Kenya, Tanzania, and Uganda. Ongoing conflict strains what limited financial resources these countries have to support their budgets, including data collection and other early warning activities.

The structural adjustment and decentralization programs that the International Monetary Fund (IMF), the World Bank, and several donor countries promote, have inadvertently contributed to a decline in data collection, field monitoring, and early warning reporting in Kenya, Tanzania, and Uganda. While the two programs are not inherently negative, their implementation has created some significant weaknesses in each NEWS. In the restructuring process, governments have

reprioritized public expenditures away from early warning, eliminated technical units in ministries (including extension and statistical units), retrenched staff, cut operating budgets, and severed communications links with the field. This obstructed the flow of data and other early warning information, an increase in information retrieval costs, and a reduction in the amount, quality, and timeliness of output from early warning and related agencies. In promoting market liberalization, USAID heavily supported the establishment and management of price data collection systems. Now that markets are liberalized, USAID is tapering off its assistance. It has experimented with supporting private-sector price information systems such as that of ACDI/VOCA in Uganda, but the approach is still highly debated.

Another potential actor in regional early warning is East Africa Cooperation, but its future role in regional food security is not yet clear. East Africa Cooperation plans to focus heavily on trade liberalization and agricultural trade between the three member East African states,[5] which have a significant impact on food security.

3. Eritrea

Having gained its independence in 1993, the Eritrean government has expressed a clear desire to remain as self-reliant as possible. The government is now in the process of establishing a functional NEWS, including data collection units in several key ministries. In 1995, with FAO and IGAD assistance, the government established an Early Warning and Food Information System (EW&FIS) in the Ministry of Agriculture. The unit is now linked to a number of agencies and ministries that collectively comprise the National Food Information System (NFIS). The NFIS Technical Committee acts as the NEWC and coordinates data collection and product generation activities. It is expected to eventually collate and use various data sets available on agro-meteorological and crop conditions, crop area and production, livestock production, agricultural input and equipment supply, agricultural prices, food imports, nutrition, health, food deficit areas, and at-risk populations. NFIS currently publishes a monthly food outlook bulletin highlighting activities and findings of each participating agency and a dekadal agrometeorological update. At the recommendation of the NFIS technical committee and in collaboration of the World Meteorological Organization, the government is attempting to establish an NFIS national meteorological service in the NFIS. FAO continues to provide a technical expert and funded NFIS operating costs through the end of 1999. The NFIS will need to acquire additional donor funding for future activities.

The Ministry of Agriculture was very weak statistical capacity. It derives crop production estimates using subjective methods, and there is insufficient capacity to integrate information from various disciplines into solid food security and vulnerability analysis. Equipment used by the Department of Meteorology is old and outdated. Many civil servants were retrenched in 1994-95. However, the government made a strong commitment to train remaining staff. In addition, the government hired many well-trained Eritreans who were expelled from Ethiopia. As a consequence, staff capacity has been developing rapidly. Nevertheless, Eritrea will require assistance for training in data collection, processing and analysis, particularly food security and vulnerability analysis, for some time to come.

[5] Kenya, Tanzania, and Uganda. Rwanda has observer status.

4. Ethiopia

The Ethiopian NEWS is in much better shape than its counterparts in the region. First of all, there has been no decrease in funding. In fact, funding may have actually increased. There is no shortage of technical expertise. Although, the Ethiopian NEWS success and vitality is partly attributable to adequate funding. Many donors are supporting various aspects of the NEWS. The government's serious commitment to early warning has drawn in donors, but the government provides most of the NEWS financial support.

The Ethiopian NEWS is multi-tiered and includes national, regional and zonal Disaster Prevention and Preparedness Commissions (DPPC). The zonal entities (DPPDs) conduct regular monitoring activities and collect data that is sent to the DPPC for analysis. Donors contribute to the analysis. Occasionally, a zonal technician will perform some analysis in the field. The zonal entities also assist in food aid delivery and distribution. Their contribution and effectiveness varies in accordance with local capacity and the support they receive from the corresponding regional commissions (DPPBs). Meteorological and hydrological data come from the National Meteorological Services Agency, donors, and regional and zonal MOA offices. Within the central commission (DPPC), there is an early warning group that formulates recommendations and functions as the NEWC. Recommendations are submitted to a high-level authority within the DPPC that, in collaboration with other high-level representatives of other government agencies, makes the final decisions concerning response.

The government statistics bureau is said to produce unreliable and sometimes politically motivated food aid needs estimates. In the past, both the DPPC and DPPBs were at odds with donor early warning operations. Each would conduct separate assessments that, at times, would produce conflicting results. However, this is changing. DPPC, World Food Program, European Union, FEWS and several other UN agencies routinely conduct joint assessments. While progress has been made, participants have not come to an agreement on common methods. A group that includes the Ministry of Agriculture, FEWS, World Food Program, Save the Children Federation/UK and EU/LFSU is in the process of developing consensus methods for agricultural production and needs assessments and preparing guidelines for a November 1999 field application.

5. Kenya

The official NEWS in Kenya was created in 1989 as part of an IGAD (then IGADD) regional initiative and funded by the Italian government. The NEWS is a network of ministries linked through a division in the Ministry of Agriculture and Livestock Development (MOALD). Although still in place, this system only produced one early warning report in 1990. The Kenya Meteorological Department (KMD) covers 32 synoptic stations. It collects rainfall data, produces regular quality dekadal reports, and televises weather forecasts. The Kenya Meteorological Department makes data available for early warning purposes. It is trying to make the department more self-sustaining by selling data to some users. It also hosts the ground receiver for and distributes LAC/NDVI data. As described below, the NEWC function is partially fulfilled by a monthly food security meeting that government officials, donors, and NGOs attend. They discuss current food security issues and design relevant interventions.

Historically, early warning information, including basic agricultural production statistics, was considered classified material and not readily accessible—except to some officials and government analysts. Even government analysts working on food security issues have had problems accessing data. Consequently, even though the main data collection agencies were in place and data collected, it was often difficult to bring different data together for early warning purposes. There is little interest in making NEWS operational as it was effectively superceded by subsequent early warning developments.

In the mid-1990s, liberalization led to greater availability of early warning data. The National Cereals and Produce Board (NCPB) now shares its data with MOALD and other ministries. FEWS has access to this data through MOALD. Also, the Government of Kenya recently began publishing agricultural production statistics. MOALD's new early warning officer was hired in 1998 and regularly updates an early warning database that FEWS gave to the office.

Like other countries in the region and throughout Africa in general, Kenya has been undergoing restructuring and decentralization. Many extension staff who collected information on livestock, crop production, rainfall, health, and education were retrenched without replacements. Those remaining have insufficient resources to fulfill their job obligations, including regular growing season monitoring activities. This has had a dramatic effect on ministries' ability to collect regular reliable food production and price data. Field data retrieval costs have skyrocketed. The FEWS office notes that, with decentralization, data has stopped flowing from the field. Whereas data were previously collected through frequent direct communication with the field, the early warning officer must wait for the district offices to send data by mail. Alternatively, the officer can travel to the field to retrieve data being collected. Despite the difficulties noted above, the MOALD regularly compiles and updates harvest estimates. The government uses this information principally to regulate food imports by manipulating import tariffs.

In addition, there is another regional, donor-supported early warning system operating in the 10 most food insecure districts. It provides early warning information geared to response planning and is implemented by the Drought Preparedness Intervention Project (DPIRP), with Dutch funding, and the Arid Land Resource Management Project (ALRMP), that the World Bank funds. The DPIRP pioneers limited scale, innovative approaches which, once proven, are incorporated into the broader ALRMP work program. Because the Office of the President plays an influential role in food security issues, these two projects are situated in this office rather than in the MOALD. The projects cover the well-known high-risk zones, principally drought-prone pastoral districts. The DPIRP instituted a decentralized early warning system that the ALRMP later replicated. Each project's coverage is geographically narrow, but the in-depth monitoring includes local livelihood analysis combined with indicators, rather than relying solely on standard generic indicators. The information quality and relevance is good but the application to development and response planning needs to be expanded. Generally, the DRIRP reporting is more punctual and of higher quality than that of ALRMP.

Some FEWS field staff feel that it is appropriate to focus early warning efforts on well-known areas of chronic vulnerability and food insecurity instead of stretching limited resources to cover all of Kenya, as the NEWS was envisioned. However, food security in traditionally less-

vulnerable areas can have an important influence in traditionally vulnerable areas. Monitoring activities need to account for these relationships, perhaps with a smaller number of indicators to monitor. Given the problems that ministries face in providing regular agricultural production, livestock, price, and rainfall data—although DPIRP and ALRMP will continue to collect and analyze such data as long as they have funding—other means of explaining and tracking vulnerability should be considered.

At the national level, a Kenya Food Security Group meets on a monthly basis to review the available information and coordinate interventions. Participants include UN agencies, the government, donors, and NGOs. The ALRMP, DPIRP, FEWS, government, and NGOs provide early warning information for the meetings. The meeting is also effective in reconciling findings and sharing information from various sources. In this capacity, it acts as the NEWC. The meeting has also been an effective mechanism for coordinating UN, donor, and NGO responses.

6. Rwanda

Prior to the eruption of extreme ethnic violence, Rwanda was noted for having the most comprehensive household-level food security monitoring system in Africa. When fighting broke out, the system was destroyed and most trained professionals were either killed or fled the country. Those who fled have not yet returned. Since 1996, FEWS has helped stimulate and coordinate efforts by the government, UNDP, the European Union, and other donors to rebuild the Ministry of Agriculture's capacity. The EU-financed Support for Food Security project (PASAR) supports food price data collection and dissemination in 35 domestic markets. PASAR was funded through December 1999, but there are provisions in the 8th European Development Fund for its continued support through 2004. USAID and UNDP have also expressed interest in providing support. Michigan State University, which used to conduct semiannual agricultural surveys before the war, was contracted to work with the Ministry of Agriculture's Statistics Division. The university's current activities are limited to thematic surveys such a fertilizer use survey planned for December 1999. With funds from the same donors, a food security unit is planned, but the government has not yet fully committed. The NEWS outlook in the short to medium term is pessimistic. Donor pressure, including funding conditionality, may eventually stimulate greater government interest and improve the climate for early warning activities.

7. Somalia

Somalia is a unique case. Prior to the central government's 1991 collapse, the European Economic Community supported an effective and operational Food Early Warning System (also known as FEWS). Since then, there has been no unified government and no official NEWS. In 1994, the World Food Program and USAID, through its FEWS project, co-founded and co-financed the Food Security Assessment Unit (FSAU), based in Nairobi. Over time, the FSAU developed into a respected and efficient early warning and food security information system. The FSAU acts as the NEWC. It is entirely financed by external sources, and its key collaborating partners each provide expertise in areas of their comparative advantage. The EU is currently the primary financial supporter, and the World Food Program is the implementing agency, and along with the Italian government and USAID, also contribute to FSAU—USAID through its FEWS/Somalia staff (an economist, agronomist, and agricultural economist). Present funding

ends in December 1999. Starting in 2000, the European Union will fund the FSAU's third phase, with the FAO as the implementing agency. With greater technical backstopping capacity, FAO management should enhance all aspects of the FSAU's work.

Somali nationals work as FSAU field monitors, in collaboration with NGOs and UN agencies throughout Somalia, monitor food security conditions on a regular basis, and conduct special assessments to provide information on food security indicators. The two Somali nationals on the FEWS team regularly conduct reconnaissance missions to Somalia and collaborate closely with FSAU monitors and others in the field and in Nairobi. Given this unique context, sustainability is not an issue since the FSAU international funding and support. The dedicated Somali FSAU staff are gaining valuable training and experience. When peace returns to Somalia, they will have the capacity to re-establish the NEWS.

8. **Tanzania**

Tanzania is the only country in Eastern Africa and the Horn where the government has promulgated disaster management legislation, the Disaster Relief Co-ordination Act of 1990. The NEWS is comprised of a series of institutions including the Ministry of Agriculture and Cooperatives (MAC), Directorate of Meteorology in the Ministry of Public Works and Communications, and Bureau of Statistics in the Planning Commission. The Tanzania Disaster Relief Committee is in the Prime Minister's Office and coordinates disaster relief. Its secretariat, the Disaster Relief Coordination Department (DRCD), is the NEWC and charged with assembling early warning information and managing disaster response. In 1997, the Disaster Relief Coordination Department consisted of just two people, but, with UNDP support, recently expanded. UNDP is slated to provide staff training. The Department chairs the Food Emergency Sub-Committee, a select group of government officials and representatives from the World Food Program and NGOs that are authorized to distribute food aid. The Ministry of Agriculture and Cooperatives Food Security Division is responsible for conducting famine early warning. Neither it nor FEWS is a formal Food Emergency Sub-Committee member.

The Food Security Division was created through an Act of Parliament in 1991. FAO provided technical and financial support from 1991 through 1994. The Food Security Division works closely with the Directorate of Meteorology, and its Crop Monitoring and Early Warning Unit (CMEWU) advises the government on food security issues, focusing mostly on food balances and grain import requirements. It monitors the food situation, collects production data, produces a food security bulletin, and counsels the government on food imports and exports. FEWS works closely with CMEWU, which assembles different types of early warning data on a regular national basis and maintains historical food security databases. However, these data are limited to those needed for food balance sheet analyses. The Food Security Division is also responsible for managing the strategic grain reserve. FEWS continues to urge the division to move beyond the FAO model of national food balance sheet analysis and cereals accounting into more substantive analysis of food security, including food access issues. In general, progress has been slow.

Economic restructuring and decentralization has had a dramatic effect on ministries' abilities to collect reliable food production and price data. Since at least the mid-1990s, the government has

been reducing the number of civil servants. Many extension staff who collected early warning information were retrenched. Those retained have insufficient budgets to do their work. FEWS reports that information from districts no longer flows to the central offices, and district-level administrators have not yet developed an appreciation for early warning activities. This is particularly problematic given that the DRCD and Food Security Division exist only at the central level. The data paucity places the government and FEWS on very weak ground to draw conclusions without field assessments.

9. Uganda

Uganda's National Early Warning and Food Information Unit (NEWFIU) was established in the Ministry of Agriculture, Animal Industry and Fisheries with assistance from IGAD in1991 and operated as a technical unit providing agricultural information through quarterly reporting until September 1998, when the government disbanded the unit, only to revive and relocate it and the early warning officer to the Department of Planning in the same Ministry the next month. Meteorological services are hosted in two centers: one in Kampala and one in Entebbe. The National Climatological Centre in Kampala is in charge of data processing and analysis, training, research, and overall administration. The National Meteorological Centre in Entebbe is responsible for daily forecasts and communications among local and international stations. Data are generally available with some gaps due to previous funding issues.

Donor funding ceased in 1995, and no alternative public financing has been forthcoming. Restructuring and decentralization have had unanticipated negative consequences. In restructuring the Ministry of Agriculture, Animal Industry and Fisheries, 12,000 people and the entire NEWFIU staff lost their jobs. At the Ministry, only one individual is now tasked with early warning and food security monitoring. Department of Statistics (recently renamed Bureau of Statistics) employees were told that, while their positions would be retained and their salaries paid, no funds would be available for data collection, analysis, or reporting. Consequently, standard household survey work has been spotty and poorly managed, and the resultant socio-economic data is highly suspect. Due to a lack of funds, the government has curtailed participation in joint agricultural assessments. These developments leave little scope for staff training and other capacity development activities.

Uganda has never been a data-rich country. Decentralization transferred administrative authority to the districts. District agricultural officers now report primarily to district offices, not directly to the central headquarters. Consequently, information retrieval has become more complicated and costly, and the quality of the Ministry's output has declined. Agricultural production estimates are usually derived without the use of statistically sound sampling procedures and often without any actual field measurement. FEWS/Uganda considers the available agricultural data too unreliable for analytical purposes. Until recently, both NEWFIU and FEWS/Uganda have based their reporting largely on rainfall and price analysis. The only source of price information, the Market News Service, is likely to close, and FEWS will have to rely on satellite imagery, rapid appraisals, and monthly FEWS field trips to collect market price data. Given that there is no NEWC, donors and the international relief community must gather and integrate information from a variety of reports issued by different government departments and nongovernmental agencies, including FEWS.

C. Southern Africa

Southern Africa, like the Sahel, has a functioning, representative regional organization, the Southern Africa Development Community (SADC). SADC has a more comprehensive mandate than that of CILSS, going beyond drought management into regional economic development, trade, transportation, etc. The SADC Food Security Technical and Administrative Unit is based in Harare because Zimbabwe has responsibility within SADC for handling the region's food security issues. The Regional Early Warning System is comprised of the Regional Early Warning Unit and the Regional Remote Sensing Unit. The Regional Early Warning Unit coordinates regional activities and is linked to the NEWU in each SADC country. The Regional Remote Sensing Unit has the responsibility for agroclimatology and remote sensing activities and is linked to all National Meteorological Services in SADC member countries. Both regional units give technical assistance and backstopping to their counterpart national units.

FAO provided technical assistance to establish both of these units, and Denmark and the Netherlands provided funding. Currently, the Regional Early Warning Unit is wholly funded by member country contributions. Although some members have fallen behind in their payments, the unit has sufficient funds to conduct its current work plan. The Regional Remote Sensing Unit operates mostly with funding from SADC member countries, with some assistance from the Netherlands. Last year, the unit's funding ended, and it had to forgo some important equipment replacements and purchases.

The regional Drought Monitoring Centre in Harare supplies dekadal information on the region's meteorological conditions. The three organizations have well-qualified staff and FEWS collaborates with their technicians. During the rainy season, the three organizations and FEWS form the core of a SADC Seasonal Monitoring Group that reviews technical information and presents it to the UN, donors, and NGOs. The focus is on the agricultural season's progression and the region's potential food security issues.

In the past, early warning was limited to food availability issues. As a result, early warning activities centered on crop monitoring, production forecasts, and standard FAO national food balance sheet analysis and cereals accounting. Currently, there is a gradually increasing appreciation that food security is a matter of food access and food availability and that food security analyses should distinguish among the regional, national, and sub-national levels.

With some additional specialized training, national and regional technical staff could engage in more in-depth regional analysis of food access issues, add significant value to monitoring, analysis and reporting, and provide more meaningful and prescriptive information to the SADC and international communities. The expanded analysis would require some additional funding and could possibly raise member dues. Senior SADC Food Security Technical and Administrative Unit staff recognize the importance of this broader view, and there is a growing national level understanding as well. During the 1999 Annual Organizational Meeting of the Regional Early Warning System, country representatives drafted and adopted a revised national early warning mandate for the NEWUs that employs a broader definition of food security and includes food access.

Structural reform has had a negative impact on early warning systems' operations throughout most of Southern Africa. In Malawi and Zimbabwe, for example, governments have continued to fund NEWS components, but with continuing public budget cuts, only donor-funded NEWS components continue to operate effectively. With the notable exceptions of Namibia and Botswana, governments engaged in restructuring have tended to retrench public servants, dismantle programs critical to early warning, and cut operating budgets.

In Southern Africa, each country has attempted to coordinate early warning activities or harmonize and improve methods. In Malawi, for example, donor efforts to collaborate in developing an early warning information system were unsuccessful. Recognizing the poor status of Zambian methods for crop forecasting and food balance sheet preparation, a committee of government agencies, with FEWS, the World Food Program, and FAO, convened to review and improve methods used in calculating crop estimates, consumption requirements, vulnerability assessments, and food balance sheets. A recent USAID-funded consultancy to review methods was conducted in August 1999. With the departure of a long-standing FAO advisor to Mozambique's Early Warning Unit, FEWS and the NEWU outlined a capacity development program; NEWU staff were to be trained in key early warning tools and methods. In Zimbabwe, the UN is coordinating international donors and NGOs to assure the best allocation and management of scarce foreign assistance. Finally, with United States Department of Agriculture funding, the Regional Early Warning Unit has commissioned a critical review of each NEWU's mandate, structure, and functions in the region. The final report was to be presented in August 1999.

1. Botswana

Botswana has two early warning units. The NEWU was established concurrently with the other NEWUs in Southern Africa. Like the others, it was in the Ministry of Agriculture and designed to function as a technical unit. However, Botswana also had the Early Warning Technical Committee at the Ministry of Finance. This committee is older and more influential than the NEWU. The two entities have never been officially integrated or linked.

The NEWU has three technical staff: an agricultural economist and two agricultural statisticians. These junior personnel are on loan from other Ministry of Agriculture departments and often required to work on other ministry activities. Their junior status puts them at a disadvantage when collecting important early warning information from more senior personnel in the Ministry and other institutions. Competing demands from their superiors interfere with regular early warning activities. As a result, the NEWU has not been able to publish a regular monthly or quarterly bulletin.

Qualified and competent, the Botswana Department of Meteorology staff interacts more with the Early Warning Technical Committee than the NEWU, although they have been willing to cooperate when the NEWU requests their assistance or participation.

2. Malawi

Malawi has a good disaggregated historic database. Still, FEWS is the only entity with an up-to-date food security database. The government had been financing data collection at several administrative levels, by employing Ministry of Agriculture and Irrigation (MOAI) field agents. In the public sector reform process, ministry enumerators were retrenched, supervision declined, and the operating budget evaporated. They had the option of private sector employment for well-trained civil servants. The public sector incentive structure is not merit -based, and there is high staff turnover, including the NEWU director's recent departure. Overall, these developments have meant a decrease in data quality and less reliable reporting.

Even though the data is sufficient for regionally disaggregated food security analysis, the government views early warning as strongly related to national food availability and, consequently, emphasizes national food balance sheet analysis and cereals accounting.

3. Mozambique

The NEWS enjoys better status in Mozambique than in Malawi and Zambia, but this is largely because of continued donor funding. The European Union was to finance the NEWU until the end of 1999. The agricultural market information service (SIMA) functions well under Michigan Stat University's guidance, although this does not cover the entire country. The National Institute of Meteorology (INAM) had an FAO advisor who worked directly with the agro-climatologist most closely affiliated with the NEWU. Although the FAO advisor left in July 1999, the agro-climatologist continues to work closely with the NEWU.

The staff at NEWU, National Institute of Meteorology, and agricultural market information service have strong technical skills, but lack experience in applying their skills to early warning. Unlike Malawi and Zambia, staff turnover is not high, but most civil servants are demoralized by low salaries and are frequently absent during business hours as they pursue other occupations to supplement low incomes. Officials regularly assign early warning staff to other tasks, suggesting that early warning is less important than other government functions. This interferes with the conduct of their regular activities and results in irregular reporting. The NEWU staff works directly with the extension staff and has additional responsibilities to collect and process crop forecasts.

The NEWS relies on FAO standard methods of national food availability and cereals accounting. As a consequence, its reporting is too narrow in its focus and produces only crop assessments, crop forecasts, and food balance sheets. The Ministry of Commerce is responsible for the food balance sheets, but the NEWU has expressed an interest in participating in the exercise. FEWS is working directly with the NEWU to broaden its reporting focus.

4. Namibia

Unlike its counterpart agencies in the region, the Namibian NEWU has sufficient funds to conduct core activities such as crop forecasts, field trips, and bulletin publication. The monthly bulletin is punctual and coverage is broader than most bulletins in the region even though the

team leader was promoted out of the unit and not replaced in 1998. Only two junior staff are left in the unit, and one quit in January due to the excessive workload. The Namibia Meteorological Service is weak and its only agro-climatologist is a British consultant. The service relies on the consultant for all agro-meteorological updates and on the South Africa Weather Bureau for seasonal forecasts.

5. Zambia

The Zambia NEWS suffers from serious funding problems. Even with the recent resumption of World Bank support of the national economy, government budgets and expenditures are highly constrained. The NEWU, for example, is not even able to purchase paper to produce its early warning bulletin. Phone lines to regional field offices have been cut at times due to nonpayment of bills, and a SADC-supplied vehicle for the NEWU was expropriated for other purposes. Staff retrenchment and turnover is worse in Zambia than elsewhere in Southern Africa. Of the five senior NEWU positions, three were vacated last year and two filled. Insufficient staff and funds inhibit the execution of critical functions.

Basic crop estimation methods are too subjective. Crop forecast measurements are taken two months prior to harvest without subsequent updating. Due to lack of funds, all data collection activities were halted. For example, there was no government money available for the national crop forecasts in the past two years. Eventually, USAID made the funds available in 1999, and the agricultural survey was conducted. The Department of Meteorology has been historically under-funded. The performance of the national price-monitoring unit of the Agricultural Marketing Information Centre has been deteriorating since FAO funds were exhausted.

The Food, Health and Nutrition Information System (FHANIS), a donor-funded food security monitoring unit, continues to operate well, but its geographic scope has been oscillating between national, sub-national, and urban coverage along with available financial resources. It had intended to cover both rural and urban areas on a quarterly basis, but due to reallocation of its funding to other activities, its scope was temporarily limited to urban areas. FHANIS now includes rural areas, but data is collected semiannually rather than quarterly. Recently, two staff members left and have not yet been replaced; the director is likely to depart in the near future.

A few months ago an important process began. Donors and a technical committee comprised of the government, FEWS, World Food Program, and FAO reviewed methods that are used to determine crop estimates, consumption requirements, and food balance sheet figures. Donors were included in the process because they have had specific concerns about data accuracy. Improving methods will undoubtedly require additional financial resources that the government does not have. However, USAID has expressed some willingness in the last two years to finance efforts to improve crop and consumption estimates. Specifically, USAID financed a recently completed consultancy to improve crop forecasting.

6. Zimbabwe

The Government of Zimbabwe is currently the sole NEWS supporter. The primary institutions comprising the NEWS are: the Department of Agricultural Technical and Extension Services

(AGRITEX), which houses the NEWU, the Nutrition Department of Ministry of Health and Child Welfare, the Central Statistical Office, the Departments of Social Welfare and of Meteorological Services, and the Department of Agricultural Economics at the University of Zimbabwe.

NEWU staff turnover is high and its relatively junior staff members are not well positioned in AGRITEX to influence policy markers. Once well funded by the World Bank and other donors, AGRITEX has lost 230 positions since 1997. The NEWU, once supported by FAO, received insufficient resources to participate in the February 1999 crop assessments.

Starting in 1998, FEWS worked with NEWU staff to produce the first joint FEWS-NEWU Current Vulnerability Assessment report for Zimbabwe. This entailed focusing on food access issues in addition to food availability.

Zimbabwe has its share of data issues. The Department of Veterinary Services in the Ministry of Agriculture collects livestock figures, but only district level detailed and disaggregated data are available. Even then, only cattle data are accurate. Pest information is in the domain of departments that do not have clear official relationships with the NEWU and, therefore, not easily accessible. The NEWU has better relations with the Meteorological Department and the Central Statistical Office (in the President's Office), since their representatives are active in the NEWS. The Central Statistical Office collects data on crop production, livestock, population, inflation, etc., but the data are not in digital format. Thus, their utility for NEWU analysis and reporting is reduced.

III. Summary and Conclusions

Resources available to institutions and agencies in each NEWS in Africa are clearly diminishing. Donor support is declining, and African governments have been tightening their budgets in accordance with IMF and World Bank structural adjustment policies. Only Burkina Faso, Ethiopia, Malawi, Mali, and Zimbabwe make financial contributions to their NEWS. In the case of Zimbabwe and Malawi, these contributions are decreasing with national budget reforms. In some instances, early warning functions are disrupted by prolonged disbursement delays. In a few instances, earmarked funds are appropriated to other activities.

In the restructuring process, most governments have reprioritized public expenditures away from early warning, cut operating budgets within the remaining allocations, eliminated technical units within ministries (including extension and statistical units), retrenched staff and, in some instances, intermittently severed communications links with the field. This has limited data collection and flow, increased data retrieval costs, and reduced the amount, quality, and timeliness of output from involved agencies.

Ethiopia and Mali are the two countries where there has been improvement in the integrity of the early warning product. Both countries attract substantial donor interest and receive extensive technical and financial support. In Ethiopia, government funding has been strong and constant, and may even have increased. Burkina Faso is considered to have good quality data, but reporting delays are increasing. In other instances, donor-funded development projects such as Kenya's DPIRP and ALRMP regularly collect reliable data that crisis prevention and response management entities routinely use. However, regardless of how welcome and useful this support is, reliance on development projects can be problematic. The project's geographic scope may not coincide with all of the key vulnerable areas in the country or with other methods of demarcating the country. Data collection methods tend to be based on project needs and, therefore, are not always consistent with other available data sets used. Project funding is short term (seldom more than five years). Finally, NEWS representatives often have to make frequent project site visits to retrieve data. There are few, if any, formal agreements on data sharing.

From this perspective, decentralization can be counterproductive when combined with unsynchronized structural adjustment and national budget contraction. Decentralization of early warning activities, however, is not inherently undesirable. Burkina Faso, Ethiopia, and Mali have active early warning data collection units at the subregional or district level. But in many countries where decentralization has occurred, information retrieval has become more costly and logistically complex. The flow of data to central NEWCs has slowed or stopped entirely.

The loss of budgetary support means that previous early warning methods become outmoded and need to be adapted to evolving country-specific environments. New early warning monitoring and information gathering methods, analytical techniques, and tools for better targeting of geographic coverage are needed.

By following FAO methods of food balance sheet analysis and cereal accounting, early warning analysis has, in general, over-emphasized national food (cereals) availability. Progress in deepening food-security analyses to focus on access and availability has been limited. Zambia

and Malawi have taken steps to broaden balance sheet accounting to incorporate other important sources of calories such as tubers and root crops. In many places, there is the requisite field-specific technical knowledge. Rarely, however, is this broader knowledge of food access articulated into multidisciplinary food security analyses that identify vulnerable populations and produce recommendations for food security program design, disaster mitigation, or contingency and response planning.

FEWS field offices state that, on the whole, national early warning staff have adequate training in relevant disciplines. In most cases, however, they need to acquire cross-disciplinary capabilities to be able to undertake the convergent analyses required for early warning and in-depth food-security assessments. However, the benefit derived from new training programs will be conditioned by the resources available to the newly-trained staff to apply new knowledge and skills. Most NEWS staff operate in an environment of poor to extremely poor resources. Furthermore, with high staff turnover, new skills tend not to remain in the NEWS. Under these conditions, training alone may not be the best use of scarce resources.

There is a need to improve the coordination of international food security, early warning activities. The new European Union RESAL program's recently placement of FEWS-like reporting units in six FEWS countries means there is an overlap in data collection, reporting, and/or capacity-building activities in Chad, Ethiopia, Malawi, Mozambique, Mauritania, and Niger. In Ethiopia, the NEWS has made advances in coordinating field assessments. Donors have tried, albeit unsuccessfully, to harmonize field methods in Chad. Small cooperative efforts have been attempted in Burkina Faso, Malawi, Mauritania, Mozambique, Niger, Zambia, and Zimbabwe. Better cooperation and more effective collaboration need to be higher priorities in a time of limited donor funding and shrinking government resources.

Table 1 Status of Data Used for Early Warning

Country	Data Timeliness	Data Quality	Level Available to Early Warning Staff	Funding Issues
Burkina Faso	1-3 week delays	Good		DIAPER ending 4/99 Government plans to include data collection costs in budget
Chad	Long delays	Depends on source	District more comprehensive, does not filter up	DIAPER ending 4/99
Eritrea				
Ethiopia		Unreliable		No funding issues
Kenya		MOALD declining ALRMP/DRIRP improving Prices questionable	District, phone communication severed	Government funding cuts due to restructuring
Mali	Good	Good	Available	DIAPER ending 4/99 Government supports SAP
Mauritania	Not regular, collection now suspended	Good weather Questionable agriculture		DIAPER ending 4/99
Malawi	Becoming sporadic	Good historic data, current declining		Government supports data collection, but funding diminishing due to restructuring
Mozambique	Irregular reporting by NEWU	Good price data Agriculture data unreliable		EU support until end of 1999
Niger	Dependent payment of government staff 1 month delay for cereal prices	Poor		DIAPER ending 4/99
Rwanda	Timely, semi- monthly urban and rural agriculture prices. No livestock prices	Good price Questionable agriculture		Donor funds available but government not committed
Tanzania	Delayed, some discontinued	Fairly good data in the 1980s, quality currently eroding.	District, doesn't filter up	Government funding cuts due to restructuring
SADC	Good, improving	Good, improving	Doesn't use all that it receives	Sufficient funds for current level of activities
Somalia	Generally available	Variable		No government funds, totally

				donor-sponsored
Southern Sudan				
Uganda	Poor and declining, some collection terminated	Poor and declining	District, doesn't filter up	Government funding cuts due to restructuring
Zambia	Extremely limited, worsening Urban data more available	Poor	Prices at provincial level, don't filter up	Government funding cuts due to restructuring USAID considering support
Zimbabwe	Cattle accurate, but small livestock not Weather and pest data limited		Local level, but requires national office permission Weather and pest data access inhibited by bureaucracy	Government funds AGRITX, including NEWU, but funds are diminishing
Information based on responses to a brief questionnaire for FEWS/field representatives, February 1999				